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(71) Applicant *(for all designated States except US)*: TELEFONAKTIEBOLAGET LM ERICSSON [SE/SE]; S–126 25 Stockholm (SE).

(72) Inventors; and
(75) Inventors/Applicants *(for US only)*: ERIKSEN, Werner [NO/NO]; Hagenbakken 7, N–1440 Drøbak (NO). HAGA, Børge [NO/NO]; Grinda 9A, N–0861 Oslo (NO).

(74) Agent: OSLO PATENTKONTOR AS; Postboks 7007 M, N–0306 Oslo (NO).

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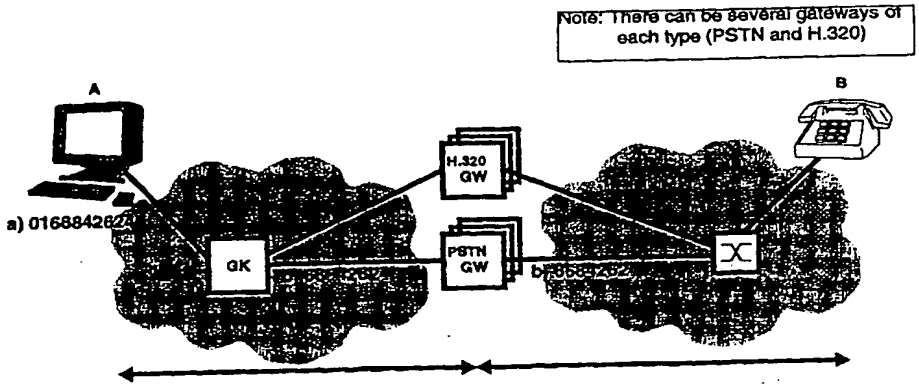
(54) Title: METHOD FOR MANUALLY ROUTING CALLS FROM A FIRST TELECOMMUNICATION NETWORK TO AN EXTERNAL TELECOMMUNICATION NETWORK



Propagation of addressing information for outgoing call

(57) Abstract

The present invention relates to method for manually routing calls from a terminal in a first telecommunication network, e.g. an intranet to any terminal in an external telecommunication network, the interworking between said networks taking place through one or more interworking units or so called gateways (GW), and for the purpose of establishing an easy way to tell which type of gateway to route the call to, it is according to the present invention suggested that there is added a prefix, given by the caller in the first telecommunication network, to the called number in the external telecommunication network, to inform the routing means or so–called gatekeeper (GK) in the first telecommunication network which type of gateway (GW) is best suited to handle the call depending on the related resource service level.

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METHOD FOR MANUALLY ROUTING CALLS FROM A FIRST TELECOMMUNICATION NETWORK TO AN EXTERNAL TELECOMMUNICATION NETWORK

Field of the invention

The present invention relates to a method for manually routing calls from a terminal in a first telecommunication network, e.g. an intranet to any terminal in an external telecommunication network, the interworking between said networks taking place through one or more interworking units or so called gateways (GW).

More specifically, the present invention relates to addressing gateway types from within a packet network/intranet.

Prior art and related problems

New emerging standard within video and audio conferencing now makes it possible to have audio and video conferences/calls within PSTN (ISDN) networks, the internet, intranets and Local Area Networks.

Since other network domains now support making audio and video conferences/calls, the need for ways of interworking between these different kind of networks has emerged. These interworking units are called gateways, and they provide the conversions necessary (protocol, audio format, video format etc.) for endpoints/terminals residing in different kind of networks to be able to communicate with each other.

There are no limitations on the number of gateways which can be connected to these networks, which means that an intranet can have access to several gateways in order for a terminal inside the intranet to call e.g. an ISDN

video-conferencing terminal. In addition, different gateways are needed for different destinations. E.g. an audio only call to an ordinary POTS telephone would use a different gateway than an audio and video call to an H.320 (ref 2) (ISDN video-conferencing) terminal.

This indicates that a call initiated from within the intranet needs to know what kind of equipment the receiving party is using. This is particularly true for calls to POTS telephones and H.320 terminals (ref 2) since both reside within PSTN network but have different features. POTS telephones support only audio, while H.320 terminals normally support video and data-conferencing as well. This in turn means that the calling party within an intranet/LAN must be able to manually route the call to the correct gateway depending on what kind of equipment the calling party knows that the receiving party outside the intranet/LAN has. This invention suggests a method for manually routing the call to the correct gateway by adding information to the called number.

Objects of the invention

A main object of the present invention is to propose a way to manually route interworking calls (i.e. over gateways) through the gateway suited for the equipment of the receiving party.

Another object of the present invention is to establish such routing in a simple but expedient manner.

Still another object of the present invention is to handle said routing information at an appropriate location in the routing path.

Brief summary of the invention

The above objects are achieved in a method as stated in the preamble, which according to the present invention is characterized in that there is added a prefix, given by the caller in the first telecommunication network, to the called number in the external telecommunication network, to inform the routing means or so-called gatekeeper (GK) in the first telecommunication network which type of gateway (GW) is best suited to handle the call depending on the related resource service level.

In an appropriate manner the invention suggest that said routing informing prefix comprises for example a two-digit code.

More specifically, it is according to the invention suggested that said prefix is adapted to inform the routing means (GK) that e.g. audio-only calls should be routed to a gateway suited for audio-only, while calls involving both audio and video should be routed to a gateway suited for calls involving both audio and video.

Further features and advantages of the present invention will appear from the following description of an example of an embodiment taken in conjunction with the enclosed drawing, as well as from the attached patent claims.

Brief disclosure of the drawings

Fig. 1 is a schematical drawing illustrating an embodiment of the method according to the present invention, wherein the routing of calls can take place between a multimedia telephone network and a PSTN (or H.320) network.

Detailed description of an embodiment

General description

The invention proposes a way to manually route interworking calls (i.e. over gateways) through the gateway suited for the equipment of the receiving party.

Description of solution

The solution lies in giving the user an easy way to tell which type of gateway to route the call to. This invention suggests to solve this by adding a prefix to the called number (E.164 address - ref. 3). The user adds a two-digit code in front of the called number telling which type of gateway is best suited to handle calls, e.g. audio-only calls to ordinary POTS telephone should be routed to an H.323 (ref. 1)/PSTN gateway, while an H.320 (ref. 2) call involving both video and audio should be routed to a H.323/H.320 gateway.

Since this is redundant information for the gateway, this prefix will be removed by the gatekeeper before the gatekeeper routes the call to the correct gateway.

Explanation of Fig. 1 where two types of gateways towards PSTN is shown for illustrational purposes:

a) Caller A wishes to call a person outside the intranet with number 66842634. The receiving party is using a POTS telephone. The call must go through the PSTN GW, since the H.320 gateway is based on videoconferencing according to H.320 (ref. 2) and in which case a H.320 terminal is needed on the PSTN side to accept the call.
The caller dials 0166842634, where 01 is the prefix to make the gatekeeper route the call to the PSTN gateway.

b) The gatekeeper looks at the prefix, sees that this is a PSTN call and routes the call to the PSTN gateway after having stripped off the prefix.

Advantages

The invention gives the owner of the intranet the possibility to host several types of gateways and still be able to route the calls to the correct type of gateway.

Broadening

The invention is not limited to the number of gateway types that can be connected from an intranet/LAN (complying to H.323 ref. 1) towards a PSTN network, but rather to how many types of networks can be connected to an intranet/LAN where gateways are needed to support transfer of audio/video/data-calls (e.g. internet, PSTN).

References

1 ITU-T Recommendation H.323 (1996):"Visual Telephone Systems and Equipment for Local Area Networks which provide a non-guaranteed Quality of Service"

2 ITU-T Recommendation H.320 (1995):"Narrow-band ISDN visual telephone systems and terminal equipment"

3 ITU-T Recommendation E.164 (1991):"Numbering Plan for the ISDN Era"

4 ITU-T Recommendation H.225.0 (1996):"Media Stream Packetization and Synchronization for Visual Telephone Systems on Non-Guaranteed Quality of Service LANs"

5 ITU-T Recommendation Q-931 (1993):"Digital Subscriber Signalling System No. 1 (DSS1) - ISDN User-

Network Interface Layer 3 Specification for Basic Call Control"

patent claims

1. Method for manually routing calls from a terminal in a first telecommunication network, e.g. an intranet to any terminal in an external telecommunication network, the interworking between said networks taking place through one or more interworking units or so called gateways (GW),
characterized in that there is added a prefix, given by the caller in the first telecommunication network, to the called number in the external telecommunication network, to inform the routing means or so-called gatekeeper (GK) in the first telecommunication network which type of gateway (GW) is best suited to handle the call depending on the related resource service level.

2. Method as claimed in claim 1,
characterized in that said routing informing prefix comprises for example a two-digit code.

3. Method as claimed in claim 1 or 2,
characterized in that said prefix is adapted to inform the routing means (GK) that e.g. audio-only calls should be routed to a gateway suited for audio-only, while calls involving both audio and video should be routed to a gateway suited for calls involving both audio and video.

4. Method as claimed in any of the preceding claims,
characterized in that a gateway suited for audio-only calls is for example an H.323/PSTN gateway, and that a gateway suited for both audio and video calls is for example an H.323/H.320 gateway.

5. Method as claimed in any of the preceding claims,
characterized in that said called number is an E.164 number.

6. Method as claimed in any of the preceding claims, characterized in that said prefix added to the called number to choose the most suited gateway (GW), is removed by the gatekeeper (GK) before the gatekeeper (GK) routes the call to the correct gateway (GW).

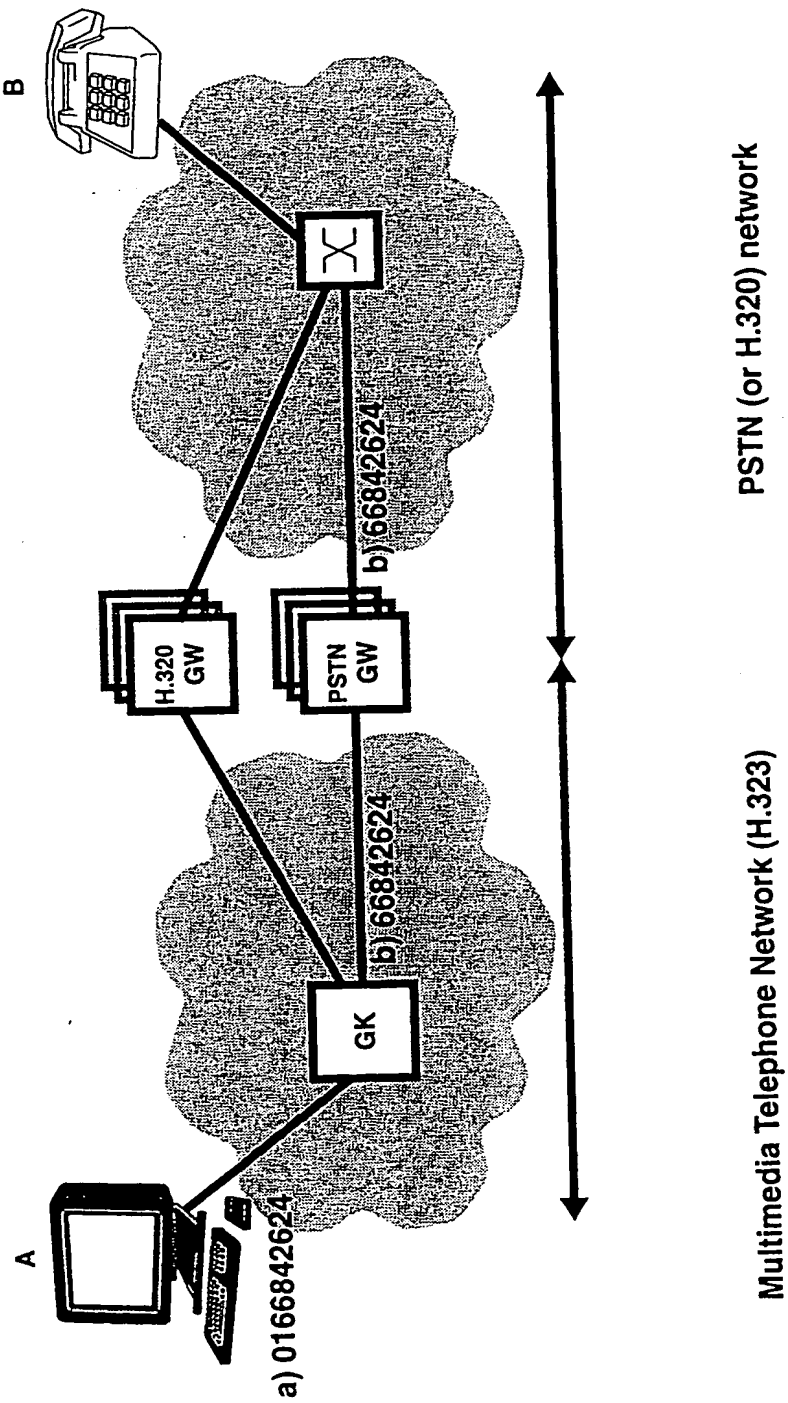
B
X
b) 66842624
H.320 GW
PSTN GW
b) 66842624
GK
A
a) 0166842624
PSTN (or H.320) network
Multimedia Telephone Network (H.323)

Fig. 1

INTERNATIONAL SEARCH REPORT

International application No.
PCT/NO 98/00330

A. CLASSIFICATION OF SUBJECT MATTER

IPC6: H04L 12/66, H04L 12/18
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC6: H04L, H04M, H04Q

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

SE,DK,FI,NO classes as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EDOC, WPIL, JAPIO, INSPEC, SCISEARCH

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	COMPUTER SWEDEN, Volume, No 73, November 1996, (SWEDEN), ., "Billig Internet-telefoni - via vanliga telefoner" page 12	1-2
A	--	3-6
Y	EP 0598969 A1 (INTERNATIONAL BUSINESS MACHINES CORPORATION), 27 November 1992 (27.11.92), page 5, line 20 - line 43, figures 2,4	1-2
	--	
P,Y	WO 9826543 A1 (TELIA AB), 18 June 1998 (18.06.98), page 2, line 19 - page 4, line 20	1-2
	--	

[X] Further documents are listed in the continuation of Box C. [X] See patent family annex.

* Special categories of cited documents:
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C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P,Y	WO 9836543 A1 (TELIA AB), 20 August 1998 (20.08.98), page 2, line 17 - page 4, line 30	1-2
	--	
E,Y	WO 9857485 A2 (TELEFONAKTIEBOLAGET LM ERICSSON), 17 December 1998 (17.12.98), column 6, line 28 - column 8, line 5, figure 2	1-2
	--	
A	EP 0603100 A2 (INTERNATIONAL BUSINESS MACHINES CORPORATION), 22 June 1994 (22.06.94), column 2, line 51 - column 3, line 57	1-2
	--	
A	US 4278844 A (DAVID F. JONES), 14 July 1981 (14.07.81), column 2, line 19 - column 3, line 10	1-2,6
	--	

INTERNATIONAL SEARCH REPORT

Information on patent family members

07/04/99

International application No.
PCT/NO 98/00330

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 0598969 A1	27/11/92	AT 176744 T	15/02/99
		BR 9304798 A	31/05/94
		CA 2105040 A,C	28/05/94
		CN 1091570 A	31/08/94
		DE 69228423 D	00/00/00
		JP 2539167 B	02/10/96
		JP 6224912 A	12/08/94
		KR 9614987 B	23/10/96
		US 5361256 A	01/11/94
WO 9826543 A1	18/06/98	SE 9604534 A	10/06/98
WO 9836543 A1	20/08/98	AU 2524897 A	22/10/97
		SE 9700516 A	15/08/98
WO 9857485 A2	17/12/98	AU 8246798 A	30/12/98
		NO 972694 A	14/12/98
EP 0603100 A2	22/06/94	CA 2105351 A,C	15/06/94
		CN 1092230 A	14/09/94
		JP 2584188 B	19/02/97
		JP 7212402 A	11/08/95
		US 5426637 A	20/06/95
US 4278844 A	14/07/81	NONE	